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## NOTES ON CHERMES\* PINICORTICIS.

("White-Pine Louse.")

BY HENRY SHIMER, M. D.

For several years past, especially since 1864, I have made careful observations and study of the Homopterous insects infesting the White Pine (*Pinus strobus*, L.) and now submit the following results for the consideration of those who may be studying the same subject.

At the early opening of Spring, there appears on the trunk and branches of the White Pine an insect covered with a wooly-down. This white substance alone attracts the attention, for the insect producing it in such great abundance is quite a minute creature and is not readily seen without the aid of a lens. This downy substance appears most abundantly on young pines, near the ground, early in the spring, just as the frost leaves the earth, indicating that the insect passes the winter on the ground in the egg-state, and that it is developed by the small amount of heat of early spring. It is now seen more especially on the trunk; some also appear in the axils of the branches. They multiply rapidly and at length, as the summer appears, they become numerous on the young shoots, feasting upon the resinous matter; they may be found more or less abundant during the season.

Within the downy substance this coccus-like insect is found. The pregnant female is of a reddish-brown color, the head not distinct from the body, the back round, much humped, the belly flat, the proboscis carried between the forelegs; the young are pale yellow, quite small, scarcely visible to the naked eye.

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\* For the present the synonymy of this species may be given thus:

**Chermes? pinicorticis.**

*Coccus pinicorticis*, Fitch, Trans. N. Y. Reports, ii, § 254; N. Y. Agric. Soc. 1859, 671.

*Chermes pinifolia*, Fitch, N. Y. Reports, ii, § 267, 1858.

As this insect belongs to my family *Dactylospharidae*, it is quite probable that, after a more careful study of its relationship with *Chermes* in Aphidæ, it will be found to be distinct from that genus. Should such prove to be the case, the following genus is proposed.

**PINEUS.**

Front wing with three simple oblique veins; hind wing with subcostal or rib-vein forked; wings roofed in repose. Antennæ 4—5-jointed. Tarsi one-jointed, claws two, with two digituli. Honey-tubes none. The female secretes a mass of wooly down in which she lays her eggs.

I have frequently made careful microscopic examinations of their feet, and was long ago convinced that their arrangement in the *Coccus* family by Dr. Fitch was a manifest error. Under the microscope I found the foot one-jointed, terminated by two claws, unusually long, and the digituli terminated by knobs.

The following is a description of the winged imago, drawn from a microscopic examination of living specimens:

Body short, thick, reddish-brown darkest posteriorly, clothed with a small quantity of downy hair. Abdomen emarginate, segments very apparent; honey-tubes none. Anterior wing: intercostal space small, but clear; stigma yellowish-fuliginous, darkest at its inner end; veins black; rib-vein strong, conspicuously joining the costal border; oblique veins nearly parallel, the second arising from the origin of the stigma, the third—which might be called a stigmatic vein—is as straight as the others and arises towards the middle of the stigma, but is aborted at its origin, the first arises about the middle of the subcostal vein, within the stigmatic junction. Posterior wing has only a rib-vein which forks opposite the quite conspicuous hook. Antennæ black, four-jointed, the divisions very conspicuous and subequal; first joint cylindrical, the others clavate; a short spine on the internal exterior angle of the basal joint, and two at the extremity of the terminal joint; when viewed from under a high magnifying power, the joints are composed of several rings, and by carefully examining the antennæ from *below*, the microscope resolves the first joint into two, although four joints will usually be recognized. Legs black, sparsely hairy; feet long, one-jointed, cylindrical, or somewhat tapering at the distal extremity, and terminated by two claws and a few short spines. Length of body .025; length of wing .05; breadth of wing .02; length to tip of closed wing .07 inch.

On June 3rd, 1868, I first observed a few of the winged specimens on the leaves of the White Pine, and in order to investigate their origin, I boxed a number of the lice (*Coccus pinicorticis*, Fitch) taken from the body and limbs of the pine trees. The next day, I obtained from the feeding box three winged specimens of *Uthermes pinifoliæ*, Fitch, and upon making an examination of the trees, I found them very plentifully on the leaves, counting from three to six on a single leaf. On June 8th, I had great difficulty in finding one perfect specimen of the winged imago, the cold rain which had fallen since the 4th, seem to have almost entirely destroyed them, many dead ones, with their wings shrivelled, were found adhering to the leaves. From the 8th to the 25th of June no winged specimens could be found.

I had originally prepared much more extended comments on this subject, and notes from my observations, but for the present the above will suffice to clear up the confusion thrown upon this highly interesting subject by the writings of Fitch and Walsh, the latter even teaching that the *Coccus pinicorticis* and *Aspidiotus pinifoliæ* are synony-

mous, (*Pract. Ent.* i, 90), which teaching is manifestly erroneous. It requires but a moments observation to see that the *Aspidiotus pinifoliae* is of the same family as the "apple bark louse," and that it therefore belongs to *Lepidosaphidæ* (*Trans. Am. Ent. Soc.* i, p. 373, Jan. 1868).

The "White Pine louse" is extensively preyed upon by natural enemies, among which I have observed the following :

1st.—An interesting heteropterous insect that, in the larval state, much resembles a brown ant, and runs about on the tree with a like activity. This insect Mr. Uhler has kindly determined to be *Camaronotus fraternus*, Uhler.

2nd.—The larva of an apparently undescribed *Chrysopa* which covers its back with the wooly down of the plant louse.

3rd.—The black lady-beetle—*Chilocorus bivulnerus*, Muls, abundant.

4th.—*Scymnus terminatus*, Say ; and a somewhat similar but smaller lady-beetle *Pentilla misella*, Zimm. MS. as determined by Dr. LeConte. This beautiful little insect is one of the smallest of the lady-beetles, is entirely black, the antennæ are hairy, the club quite close, much more so than that of *Scymnus terminatus*, the first joint thick, 2—8 slender, 6—8 very short, 9 and 10 campanulate, 11 truncate, conical ; legs hairy.

5th.—The larva of a species of *Scymnus*, longer than that of *S. terminatus*, and from which I bred a beautiful *Chalcis* fly. \*

6th.—Many larvæ of unknown species of *Syrphidæ*.

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\* *Eutelus* ? *scymnæ*, n. sp.—♂ Thorax large, abdomen short, body brown, covered with short hairs ; head moderate, a broad, light yellowish band placed vertically on median line of the face ; ocelli none ; eyes large, elongate, reticulated with whitish depressed lines ; legs lighter brown, naked, tarsi whitish, spurs of middle tibiæ more than half the length of the tarsi ; middle legs long and slender ; hind femora stout and curved inwardly, antennæ long, slightly downy, dark brown, except the terminal half of flagellum, which is white, tip acuminate ; wings grey-translucent, a dark spot at base, and a broad blackish band across the middle, fading into lighter posteriorly, tips slightly fuliginous. Length .07 inch

*Mt. Carroll, Illinois, April 1, 1869.*